

REMARKS

This reply accompanies a request for continued examination (RCE).

Claims 1, 3-7 and 13 are pending for further examination. Claim 1 is currently amended. Claim 8 is canceled. Applicant thanks the Examiner for recognizing that claim 13 includes allowable subject matter.

Claims 1, 3-5 and 7 were rejected as anticipated by Huang (U.S. Patent No. 6,359,341). Claim 6 was rejected as unpatentable over Huang in view of Tachibana (U.S. Patent No. 6,270,607).

Currently amended claim 1 recites a circuit device that includes a conductive pattern "in a single layer" on which a circuit element is mounted, an insulating resin which covers the circuit element and conductive pattern, a shielding layer on the insulating resin and a through hole that penetrates the resin in a "thickness direction" and "extends from the main surface of the insulating resin to a top surface of the conductive pattern." A connecting means inside the through hole electrically connects the shielding layer and conductive pattern. For example, FIG. 1 of the present application shows circuit element 12 mounted on conductive pattern 11 that is formed in a single layer (pg. 16, lines 4-5). An insulating resin 13 covers circuit element 12 and conductive pattern 11 and has a through hole that extends from the main surface of the insulating resin 13 to a top surface of the conductive pattern 11 (pg. 9, lines 4-14). A shielding layer 14 on the main surface of the insulating resin is connected to the conductive pattern 11 using connecting means 15. The shielding layer 14 can prevent an electromagnetic wave, that may be generated from an external electromagnetic source, from adversely affecting the circuit element 12 by discharging potential on layer 14 to a ground potential connected to the conductive pattern 11. In some implementations, the short distance and direct pathway provided by the single layer conductive pattern in a through hole having the above features can improve the performance of the shielding layer as a means to discharge potential from the shield layer to ground over devices that use conductive patterns in multiple layers.

In contrast, the Huang patent does not disclose or suggest the features recited in claim 1 of the present application. The Huang patent discloses a semiconductor chip 33 mounted to first conductive traces 301 and covered by encapsulant 35. A heat spreader 7 covers the encapsulant and is connected to ground metallic layer 32 (*see* FIG. 3). However, the ground metallic layer 32, first conductive traces 301 and second conductive traces 302, which the Office action alleges correspond to the claimed conductive pattern (pg. 2, Office action), are not in a “single layer” as recited by pending claim 1. Instead, FIGS. 2 and 3 of the Huang patent show that conductive traces 301, 302 and ground metallic layer 32 are formed using several different layers (*see* col. 4, lines 31-32).

In addition, the Huang patent does not disclose or suggest a through hole which penetrates an insulating resin in a “thickness direction” as recited in present claim 1. Although FIG. 3 of the Huang patent shows a skirt portion 71 within encapsulating resin 35, the region through which skirt portion 71 passes does not penetrate the insulating resin in a “thickness direction.” Instead, FIG. 3 clearly shows that this region extends through the encapsulant 35 *at an angle* with respect to the thickness direction of encapsulant 35.

Furthermore, the Huang patent does not disclose or suggest that the through hole “extends from the main surface of the insulating resin to a top surface of the conductive pattern” on which the circuit element is mounted as recited in present claim 1. Rather, FIG. 3 of the Huang patent shows that the region through which skirt portion 71 passes extends from *beneath* the main surface of encapsulant 35 to the top surface of ground metallic layer 32. Indeed, the Huang patent discloses that the encapsulant 35 is used to provide an anchoring effect that can help secure the heat spreader 7, of which skirt portion 71 is a component, more fixedly in position in the encapsulate (col. 6, lines 58-62).

At least for the foregoing reasons, claim 1 should be allowed.

Claims 3-7 and 13 depend from claim 1 and should be allowed for at least the same reasons as claim 1.

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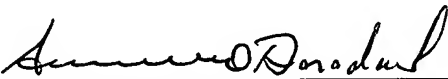
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It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Enclosed is a check in the amount of \$790 in payment for the Request for Continued Examination (RCE) fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 8/14/06



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